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First attempt for a large shopping center in Japan  
**“Diver City Tokyo Plaza” determined to adopt the new “Cleaning Robot CL02” developed by  
Cyberdyne**  
Using AI technology to accelerate the reduction of workers required for cleaning shopping centers

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Mitsui Fudosan Co., Ltd [CEO: Masanobu Komoda (“Mitsui Fudosan”), announced to adopt Cleaning Robot (“CL02”) that was newly developed by CYBERDYNE, INC. [CEO: Yoshiyuki Sankai (“Cyberdyne) ] for Diver City Tokyo Plaza starting from March 2018. Diver City Tokyo Plaza is a shopping center operated by Mitsui Fudosan, located in Aomi, Koto-ku, Tokyo.

Mitsui Fudosan intends to overcome the recent trend of decline in manpower by utilizing ICT so that the required number of workers for facilities management could be reduced. Mitsui Fudosan is currently considering implementation of such technologies for multiple facilities.

Since its establishment as a venture company from the University of Tsukuba in 2004, Cyberdyne has promoted the comprehensive development of various Cybernic Systems that utilize Cybernic Technology from research and development to social implementation, aiming to tackle the various issues facing society. Its main product Robot Suit HAL® is widely distributed not only in the medical and welfare fields but also in care support and labor support fields. In addition to HAL, Cyberdyne has introduced number of new products such as Cleaning Robot and Transportation Robots equipped with artificial intelligence and environment recognition functions

Since November 2017, the two companies started to work together on verification trials of CL02 in Diver City Tokyo Plaza. Then Mitsui Fudosan decided to adopt CL02, as it was able to overcome the difficulties that are peculiar to commercial facilities such as large open ceilings and complex curve shaped pathways, utilizing advanced sensing and AI technology of Cyberdyne. Furthermore, using the ability of CL02 to create reports on density of dusts, operators can identify locations that need to be cleaned more often, which will maximize the efficiency of the cleaning team.

Following the adoption of CL02 in Diver City Tokyo Plaza, Mitsui Fudosan will maximize the efficiency of the Cleaning Robot for facility management, before CL02 can be implemented to other shopping centers operated by Mitsui Fudosan such as “Mitsui Shopping Park LaLaport”.

Mitsui Fudosan also plans on adopting cutting edge technologies in the future for wide areas such as facility management including security and energy saving, contribution to the environment through energy saving, providing information to customers, in order to maximize the efficiency of facility management and operation.



■ Cleaning Robot CLO2

While lack of manpower due to aging society is becoming a primary concern on cleaning sites, Cyberdyne and its Cleaning Robot CL02 propose a new way of cleaning where cleaners could interactively work side by side with robots. CL02 is an autonomous cleaning robot that requires no guidance of wires or electric tape. CL02 scans the building form and records the cleaning route taught by the operator. It could also utilize “automatic cleaning path generation” function, which allows CL02 to determine the cleaning routes on its own without intervention of the operator. Compared to its previous model, CL02 is faster and capable of covering wider areas. It could also identify objects in its pathways through 3D cameras and generate a map that analyzes the volume and location of dusts found. CL02 is easy to use and the operators in site can easily change the robots cleaning routes. CL02 will maximize the cleaning efficiency of each cleaner, enabling them to constantly conduct high quality cleaning with minimum number of staff members. Cyberdyne hopes to utilize CL02 in commercial buildings, airports and various other large facilities.

<supplementary document> Outline of “Diver City Tokyo Plaza”

Location	1-1 Aomi, Koto-ku, Tokyo, Japan
Access	5 min walk from Daiba station, Yurikamome line 3 min walk from Tokyo Teleport station, Rinkai line Approx. 1km from Daiba IC, Route 11 Shuto Expressway
Opening Hours	Shopping/Services 10 : 00~21 : 00 Food Court 10 : 00~22 : 00 Restraunt 11 : 00~23 : 00 *Opening hours maybe different for some of the stores
Site area	Approximately 32,900 m <sup>2</sup>
Number of stores	Approximately 150 stores in the shopping areas
Size/structure	Shopping areas and parking space: steel reinforced concrete 9 floors above ground, 1 floor below ground
Total floor area	Shopping areas and parking space: approx.140,200 m <sup>2</sup>
Area lent	Shopping areas : approx. 47,000 m <sup>2</sup>
Parking size	Approx. 1,400 vehicles
Operator	Mitsui Fudosan Retail Management Co., Ltd.
Homepage	<a href="https://mitsui-shopping-park.com/divercity-tokyo/en/">https://mitsui-shopping-park.com/divercity-tokyo/en/</a>